

9.—CONTRIBUTIONS TO THE FAUNA OF ROTTNESST ISLAND.
VIII. APOIDEA.

WITH DESCRIPTION OF NEW SPECIES.

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Communicated by L. Glauert.

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So little work has been done on the Hymenoptera of Australia that even moderate collections reveal new species, and the Rottneest series, though small, are no exception to this rule. The island is so close to the mainland, that one could hardly expect to find any great departure from the mainland forms, yet there are differences, but until the insects of Western Australia are known better, it is not wise to attach much importance to the variations as indicative of specialization due to a change of ecology. Any very large series of mainland species exhibits differences, which is not surprising when one remembers that perfect stability of form must be exceedingly rare in the evolutionary scheme.

Professor W. M. Wheeler, when he last visited Australia, told me that when collecting in America one would often obtain large numbers of one species, but here it was different, one could obtain numerous bees, but they would be of many genera and species. I partly agree with him, but point out that should the collector just happen to obtrude during a certain phase of the life-history, then he will most certainly obtain a preponderating number of say, males of one species, whereas, should he be a little later, hardly one male would be caught. The collections surveyed in this paper contain very large series.

I have been able to study the bees of the island owing to the courtesy of Mr. L. Glauert, Curator of the Museum at Perth, who collected the specimens and to whom I am indebted for a reprint of Alfken's paper on Hymenoptera of Western Australia.

On the ground of economy, the historical references have been omitted.

Order *HYMENOPTERA*.

Suborder *HETEROPHAGA*. Superfamily *APOIDAE*.

Division *COLLETIFORMES*. Family *HYLAEIDAE*.

Hylaeus obtusatus Smith.

A very large series of females varying much in size. Some having a yellow spot on the tegulae, but all with short jaws approaching those of *Pachyprosopis*.

A large series of males indistinguishable from those of the mainland. (February, 1933.)

Hylaeus cognatus Smith.

Four females identical with those of the mainland. One *Hylaeus* male so exceedingly close to *H. cognatus* that I do not separate it. (February, 1933.)

Hylaeus elongatus Smith.

One male which answers to Smith's description; this is very close to *H. cognatus* Sm.

***Turnerella glauerti*, sp. nov.**

Female.—Length, 3mm. approx. Black and Yellow.

Head large, quadrate from front, scattered minute punctures; face to beyond antennal insertion butter-yellow; frons with a delicate sculpture; clypeus short, but wide; supraclypeal area large; vertex black, the junction of the colour "countercharged," i.e., the yellow impinges on the black with the same pattern as the black on the yellow; compound eyes black, anterior margins parallel; genæ yellow, upper portion black; labrum yellow, a few white hairs; mandibulæ yellow, reddish apically; antennæ with yellow scapes, flagellum yellow beneath, black above.

Prothorax black, with irregular dull-yellow marks; tubercles yellow; mesothorax, scutellum, postscutellum and metathorax shining black dorsally, a minute sculpture, scattered minute punctures, mesothorax with obscure yellowish patches anteriorly; metasternum with dark patch; abdominal dorsal segments blackish, margins of one and two yellowish; ventral surface of entire insect butter-yellow.

Legs yellow, hind tibiæ more or less suffused with black; tarsi of hind legs suffused with blackish; claws reddish-amber; hind calcar white (as the insects are on cards this cannot be studied); tegulæ yellow; wings hyaline; nervures dark-brown, rudiments of the second cubital cell in the form of stumps; cells: the radial very large; pterostigma large, brown; hamuli cannot be studied.

Locality.—Rottneest Island, Western Australia (March, 1933).

Type in the collection of the Perth Museum.

Allies: *T. doddi* Perk., which has the basal cavity of the abdomen yellow. This was described from Queensland.

***Euryglossina hypoxantha*, sp. nov.**

Female.—Length 4mm. approx. Black and yellow.

Head very wide, yellow; face with a microscopical striation and scattered small punctures; frons with the black of the vertex meeting the yellow along a suffused edge; clypeus yellow; excessively short; supraclypeal area very prominent, yellow; vertex with a black (or suffused with blackish on some) parallelogram; compound eyes reniform, black; genæ yellow; labrum yellow; mandibulæ yellow, with red tips; antennæ inserted very low down, amber, first segment of flagellum large, segments wider than long.

Prothorax yellow, but suffused with blackish above; tubercles yellow; mesothorax yellow, but dorsal surface suffused with blackish; minute close punctures and cancellate sculpture; scutellum and postscutellum black on male (suffused with blackish on female); metathorax yellow, but suffused with black on dorsal surface; abdominal dorsal segments black on male (with suffused bands on female), long white hair apically, a few short stiff hairs.

Legs yellow, tarsi amber, hind tarsi darkest; claws reddish; hind calcar pale-amber; tegulae pellucid; wings hyaline, iridescent; nervures pale-amber, basal arched; cells: second cubital a trapezium; pterostigma large, amber; hamuli five, exceedingly weak.

Locality.—Rottnest Island, Western Australia (March, 1933).

Type in the collection of the Perth Museum.

Allies: *E. hypochroma* Ckll, which has a black head. The new species has the whole of the dorsal surface of the males black, or suffused with blackish on females.

Euryglossina flaviventris Cockerell.

A series of females indistinguishable from specimens from the type locality, Mt. Hule, Healesville, Victoria. This is a great extension of range, and since the flight of these bees is very limited, it is plain that they could not have crossed the stretch of water now separating the island from the mainland.

Recorded also from Brisbane, Queensland. (March, 1933).

Euryglossina parazantha, sp. nov.

Female.—Length 5.5mm. Black and yellow.

Very like *E. hypozantha*, but the tegument is coarsely tessellate, whereas that of *E. hypoxantha* is exceedingly finely striate. The black of the dorsal surface is intense, not at all suffused, extends to the thoracic sterna, and is marked about the pleura with large patches of yellow. The facial foveae are short, straight, and extend below the black as fine black lines, while the yellow of the face extends up along the orbital margin as a fine yellow line. The foveae of *E. hypoxantha* are very long, and incurved until they almost touch the lateral ocelli. (March, 1933).

Euryglossina microdonta, sp. nov.

Female.—Length, 4mm. approx. Black.

Head large, but not quadrate, bright; face-marks nil; frons with a delicate sculpture, and scattered fine punctures; clypeus short but wide, punctures more evident and closer, anterior margin with three small teeth, the middle one being minute; supraclypeal area and vertex with similar sculpture; compound eyes black, reniform; genae minutely striate; labrum amber; mandibulae amber tipped with red, broad, somewhat truncated; antennae black, flagella amber beneath.

Prothorax finely striate; tubercles yellow with a black spot; mesothorax coriaceous, minute obscure punctures, a few short white hairs; scutellum, postscutellum and metathorax of similar sculpture; abdominal dorsal segments microscopically transversely lineolate; ventral segments similar.

Legs black, knees and anterior tibiae yellow; tarsi somewhat suffused with blackish, a few short white hairs; claws reddish; hind calcar cannot be studied; tegulae pallid, with a dark dot; wings subhyaline; nervures dilute sepia; cells normal; pterostigma large, dilute sepia; hamuli cannot be studied.

Locality.—Rottnest Island, Western Australia. (March, 1933.)

Type in the collection of the Perth Museum.

Allies: Approaches *E. fultoni* Ckll, which was described from Purnong, South Australia, and which has all the tibiae yellow, but it lacks the clypeal teeth. Neither is typical of the genus.

Euryglossae Smith.

Those with a metallic head and thorax, black abdomen, and reddish legs may be separated by the following:—

KEY.

- | | |
|---------------------------------|---|
| Clypeus green. | |
| Mandibles yellow. | <i>E. inconspicua lutea</i> subsp. nov. |
| Clypeus black. | 1. |
| 1. Abdomen black. | <i>E. inconspicua</i> Ckll. |
| Mandibles dark red subapically. | 2. |
| 2. Head and thorax bluish. | <i>E. walkeriana</i> Ckll. |
| Flagellum dark. | 3. |
| 3. Mandibles dark amber. | <i>E. subinconspicua</i> Raym. (M.S.). |

Euryglossa inconspicua lutea, subsp. nov.

Female.—Length, 5.5mm. approx. Green and black.

Head green, shining; face-marks nil; frons tessellate, scattered shallow punctures; clypeus polished green, scattered deep punctures; supraclypeal area similar, pyramiform, a fine carina reaching the median ocellus; vertex with a dark-purple mark on orbital margin; compound eyes reniform, blackish; genae with long, loose white hair; labrum blackish; mandibulae butter-yellow, red apically; antennae black above, flagellum ferruginous beneath.

Prothorax green; tubercles black, with fringe of white hair; mesothorax bronze-green, tessellate, a few punctures, a few white hairs; scutellum similar; postscutellum darker, with finer sculpture; metathorax dark bluish-green, tessellate shining, with long white hair laterally; abdominal dorsal segments black, with hind margins broadly and laterally light luteous, a few white hairs; ventral segments similar.

Legs greenish-black, knees and tibiae light-ferruginous, white hair; tarsi light-ferruginous; claws reddish-amber; hind calcar pale-amber; tegulae pale-amber; wings hyaline, iridescent; nervures amber, second recurrent, if continued up, being parallel with the second intercubitus; cells: second cubital longer than high, basal and apical margins of equal length; pterostigma amber; hamuli six, weak.

Locality.—Rottnest Island, Western Australia (March, 1932.)

Type in the collection of the Perth Museum.

Allies: *E. walkeriana* Ckll, which is bluish, with dark mandibles. This was described from Tasmania, and I have collected it at Croydon, Victoria.

Family COLLETIDAE.

Paracolletes amabilis Smith.

One female, typical in all characters.

Paracolletes friesei Cockerell.

Male.—Length, 8mm. approx. Blue.

Head dark-blue, bright, with loose, long, white hair; face-marks absent; frons longitudinally striate; clypeus black, with purple tints, large scattered punctures; supraclypeal area blue; vertex with fuscous hair; compound eyes blackish, reniform; genae greener, with long white hair; labrum blackish; mandibulae blackish, with beautiful purple tips; antennae black, flagellum reddish at apex, second basal segment somewhat flattened and dilated.

Prothorax not visible from above; much white hair beneath; tubercles with white hair; mesothorax greener than head, large scattered punctures on a rough sculpture, a dense coat of bright-orange or fulvous hair; metathorax blue, with several transverse striae; abdominal dorsal segments bluish-purple, hind margins broadly depressed, and narrowly lighter, coarse scattered punctures, scattered white hair; apex with fuscous hair; ventral segments blacker, with white hair.

Legs black, with black and white hair; tarsi black, white hair with golden tints; claws amber; hind calcar blackish, large; tegulae piceous, polished; wings hyaline; nervures brownish; cells, second cubital contracted at apex; pterostigma brown; hamuli nine, of moderate development.

Locality.—King George's Sound, also Rottnest Island, Western Australia. (February and March.)

Allotype in collection of the Author.

Allies: *P. plumosus* Sm., which is bluer on the mesothorax.

Paracolletes friesei Ckll. syn. *P. fervidus* Friese.

Several females rather larger than the type to which they otherwise conform very well. Described from King George's Sound.

Paracolletes minutus Cockerell.

A vary large series of males, typical in all characters, and as many females, which confirm Meade Waldo's suggestion that *P. haliectiformis* Ckll is the other sex.

A description of the Rottnest Island species is appended.

Paracolletes minutus Ckll.

Female.—Length, 7.5mm. approx. Black.

Head circular from front, shining; face with long loose white hair laterally; frons densely and closely punctured; clypeus convex, close coarse punctures, a few slender hairs; supraclypeal area rising to a fine carina, polished at apex; vertex sharply developed with short fuscous hair; compound eyes claret-brown, reniform; genæ almost rugose; labrum black; mandibulæ red, black basally and apically; antennæ black, obscurely lighter beneath.

Prothorax not visible from above; tubercles fringed with white hair; mesothorax with dense coarse punctures, shining, and dull-white, moss-like hair; scutellum similar, but hair on disc darker; postscutellum coarsely punctured, with a tuft of long white hair stained with drab in centre (in some specimens a slight prominence); metathorax rugose, coarsely so, a few white hairs laterally; abdominal dorsal segments with apical margins broadly brown, two, three and four with narrow fringes of short white hair; closely punctured; apex with fuscous hair; ventral segments brown, otherwise similar to dorsal surface.

Legs brownish-black, with white hair, scopa on hind tibia fuscous on outer surface; tarsi redder, with yellowish hair; claws reddish; hind calcar reddish, with eight long fine spines; tegulae pellucid brown; wings subhyaline; nervures brownish; cells as in female; pterostigma amber, with darker margin; hamuli seven, weakly developed.

Locality.—Rottnest Island, Western Australia (December, 1930, 1932).

Allotype in the collection of the Perth Museum.

Allies: *P. punctatus* Sm. which is delicately punctured on metathorax, with bright yellow hair on legs and fringes of abdomen.

***Paracolletes subminutus*, sp. nov.**

Female.—Length, 9mm. approx. Black.

Head transverse, not very bright, numerous punctures of various sizes; frons finely punctured, polished; clypeus with a minute sculpture, duller, with larger irregular shallow punctures; supraclypeal area polished, with a fine carina reaching and enclosing the median ocellus; vertex with hair slightly yellowish; compound eyes with long pale hair; labrum black; mandibulæ long, black with obscure red apically, the inner tooth very small; antennæ dark-brown above, obscure red beneath at extreme apex.

Prothorax not visible from above, black; tubercles black, fringed with pale hair; mesothorax polished with numerous fine shallow punctures, long pale hair; scutellum similar to mesothorax; postscutellum rougher, dull, with an obscure elevation and a tuft of white hair; metathorax has the enclosed area with weak transverse striæ; abdominal dorsal segments bright, hind margins broadly pallid, and separated from the black with a red line, the segments are finely and sparsely punctured, three and two with broadly interrupted bands of white hair, four with white hair, five and six covered with hair of a reddish-gold tint, the last with a dark-red naked area; ventral segments showing more red, and each has a white fringe.

Legs blackish, the tibial scopa long, white within and stained without; tarsi with yellowish hair beneath, white above, claws bifid, dark-red; hind calcar ferruginous, with ten slender spines; tegulæ polished, dark-reddish; wings very slightly yellowish; anterior 6mm. nervures dark-brown, basal slightly arched, just short of nervulus, first recurrent meeting the second cubital cell at its anterior third; all had a stump arising from the discoides nervure as though vestigial of a fourth discoidal cell; cells: the second cubital greatly contracted at its apex; pterostigma dark-brown, of moderate development; hamuli seven, weakly developed.

Locality.—Swan River, Western Australia (collector not known).

Type in the collection of the author. Two specimens from Rottnest Island in the collection. (October, 1931).

Allies: *P. nanus* Sm. which has black hair at apex of abdomen; *P. nicholsoni* Ckll. with impunctate basal segment; *P. punctatus* (Sm.) with fulvous hair-bands on abdomen. These could be the females of *P. pusillus* Ckll.

***Paracolletes submacrodonatus*, sp. nov.**

Male.—Length, 11mm. approx. Black.

Head with facial quadrangle longer than wide; face with dull-white hair; frons shining, with weak punctures; clypeus rough, with numerous shallow punctures; supraclypeal area with large, distinct punctures; vertex nearly impunctate, with fewer pale hairs; compound eyes reniform, claret-brown; genæ finely striate, sparse coarse punctures; loose white hair; labrum black; mandibulæ black, a reddish patch subapically; antennæ long, submoniliform, black above, obscure reddish beneath.

Prothorax not visible from above; tubercles with white loose hair; mesothorax smooth, shining, scattered shallow punctures, a dense covering of grey hair tipped with fuscous; scutellum with two large tubercles; postscutellum with a large tubercle; metathorax with a large highly-polished area enclosed with a beaded margin, outside of which are scattered punctures and white hair; abdominal dorsal segments black, apical margins broadly reddish-amber, with a thin, loose fringe of long pale hair; numerous fine punctures and shorter black hair; apex with black hair; ventral segments similar.

Legs dark-reddish on femora and tibiæ, but black on trochanters and coxæ; long pale hair; tarsi dark-reddish, white and golden hair; claws reddish; hind calcar reddish, fine long serrations; tegulæ reddish-black, polished; wings darker apically; nervures brown, first recurrent entering second cubital at middle; cells: second cubital quadrate, radial truncate; pterostigma small, dark-brown; hamuli fifteen, strongly developed.

Locality.—Rottnest Island, Western Australia. (February, 1933).

Type in the collection of the Perth Museum.

Allies: *P. microdontus* Ckll. which has black legs, and no tubercles on scutellum; *P. macrodontus* Raym. which has a very acute tooth on the post-scutellum.

Division ANDRENIFORMES.

Family HALICTIDÆ.

Halictus pulvitectus Cockerell.

A large series of males and females, smaller than the type which was described from Eaglehawk Neck, Tasmania. A new record for the State, and which greatly extends the range of this species. Compared with specimens from Clovelly, New South Wales, these are larger with antennæ lighter beneath. (October, 1931, December, 1932.)

Halictus orbatus Smith.

A bee that may prove to be the male of this species which also was described from Tasmania.

Halictus victoriae Ckll.

A very large series of females and males. Since a number are gummed on each card, there may be *H. veronicae* among them. I have always taken these together at Sandringham, Victoria, from where they were described. In any case, these two species are difficult to separate. The males are the undescribed sex, and I append a description which shows how close to *H. veronicae* it is.

Halictus victoriae Cockerell.

Male.—Length, 4mm. approx. Green.

Head wide, shining; face with scattered loose white hair; frons closely punctured; clypeus polished, anterior half bracket-shaped, cream, posterior green, a few punctures; supra-clypeal area polished, with fine punctures; vertex with strong transverse striæ, about three in number; compound eyes claret, subreniform; genæ finely punctured, with long, loose plumose hair; labrum cream-coloured; mandibulæ acute, creamy-yellow tipped with red; antennæ black, beneath the flagellum is creamy-orange, except the three apical segments which are black.

Prothorax not visible from above; tubercles greenish, with a thin fringe of white hair; mesothorax coppery-green, polished, a few punctures, a few white hairs; scutellum similar, postscutellum blue-green, rougher; metathorax greener, with partly radiating, partly anastomosing rugæ, a few white hairs; pleura with long white hair; abdominal dorsal segments polished, fine punctures, margins very narrowly ferruginous, seventh ferruginous; ventral segments similar, with considerable white hair.

Legs with dark prismatic femora, anterior tibiae reddish, with white hair; tarsi: basitarsi creamy, others pale-ferruginous; claws reddish-amber; hind calcar creamy; tegulae pellucid, with brown spots; wings prismatic, hyaline; nervures pale-amber, outer recurrent and intercubitus faint; cells normal for *Chloralictus*; pterostigma pale-amber, with dark-brown margin; hamuli six, very weak.

Locality.—Sandringham, Victoria, March (Rayment); Rottnest Island, Western Australia. (December, 1931, and March, 1933.)

Cotypes in the collection of the Museum and the author.

Allies: *H. veronicae* Ckll. which has ferruginous legs; *H. purnongensis* Ckll. which has a piceous abdomen.

In Victoria, mating on flowers of garden *Veronica*.

Family MELECTIDAE.

Crocisa waroonensis Ckll.

Two females. Specimens from the Swan River, on the mainland, often show a bluish powdery bloom over the entire insect, but on these island specimens the bloom is entirely absent. (January, 1932.)

Family ANTHOPHORIDAE.

Anthophora zonata Linn.

Two females with the hair of the thoracic disc much bluer than specimens from the River Murray, in Victoria, when the hair is almost fulvous. (January, 1932.)

Anthophora cingulata Fabr.

A series of females. They are unlike most *cingulata* in my collection, but agree in a general way with females from Sydney. Viewed from the rear the abdominal bands are almost golden, but viewed from above the bands are more or less bluish to green, as described by Professor Cockerell for *A. adelaide*. They have a close resemblance to females from Tarnagulla, in Victoria. (January, 1932, 1933.)

Anthophora adalaidae Cockerell.

Female.—Length, 12mm. approx.

Head transverse, black; face with pale-yellow hair (Sydney specimen redder); frons with close punctures; clypeus with a creamy-yellow \perp reversed, the apex of the stem truncate (acute in Sydney specimen) large punctures (closer on Sydney bee); supraclypeal area with a long thin mark rising to a dome in the middle; vertex with golden hair; compound eyes greenish; genae with palest-blue hair; labrum cream, white hair; mandibulae cream, black tips; antennae black; (scape of Sydney bee with a small yellow mark).

Prothorax not visible from above; tubercles black; mesothorax black, closely punctured, with a dense covering of a lively light fulvous hair, mixed with a few black ones; scutellum and postscutellum similar; abdominal dorsal segments black, densely punctured, with appressed black hair; margins with wide hair-bands which, viewed from the rear, appear golden, from above they are more or less greenish-blue; apex with black hair. (Fourth and fifth margins are crenulate in the Sydney bee, but these may be abnormal.)

Legs black, pale-blue hair; tarsi black, some pale-blue hair on basitarsi; claws black; hind calcar blackish; tegulae apricot-colour, with pale yellow hair; wings clear; pterostigma dark-brown; hamuli twenty-one, strongly developed.

(The Sydney bee may not be conspecific.)

Locality.—Rottneest Island, Western Australia. Sydney, New South Wales, P. Whiteley.

Allotype in the collection of the Perth Museum.

Allies: *A. zonata*, Linn., which is smaller. This is a very difficult group, and needs a critical revision, for apart from the yellow face-marks there are few distinguishing characters. The species was described from the Adelaide River.

Division MEGACHILIFORMES.

Family MEGACHILIDAE.

Megachile chrysopyga Smith.

A large series of males and females, which shows some variations in size; females 11-14mm., males 10-12mm. The hair of the face in the males ranges from cream to dark-red, in the females the red colour does not change, but the quantity does. On the Island specimens the apical hair patch of the abdomen is larger, and varies in colour, while the median apical tooth of the male may be acute and long, or obtuse and short. (April, 1930, January, 1932, February, 1932, March, 1932, April, 1930.)

Megachile erythropyga Sm.

One typical male. (February, 1931.)

Megachile preissi Ckll.

Labelled by Preiss "Eastern Australia"; but my specimen was collected in the Swan River, Western Australia. *M. clypeata* has the tegument of the sixth segment red, and the clypeus lacks the long median tooth of *M. Preissi*, the tegment of which is black on the sixth segment.

Megachile clypeata grandis, subsp. nov.

Female.—Length, 8mm. Black.

A large robust form of the species which measures only 6mm. and is found also on the Island. I should have hesitated to separate these but for a slight difference in the clypeal teeth. The compound eyes of both species and subspecies exhibit prominent hairs between the facets. (January, 1932.)

Megachile rotnnestensis, sp. nov.

Male.—Length, 9mm. approx. Black, red legs.

Head wide, closely punctured; face covered with dense long white hair; frons closely punctured; clypeus closely and coarsely punctured; margin quadridentato, the median teeth acute; supraclypeal area similar; vertex

almost rugoso-punctate, a few blackish hairs; compound eyes slightly converging below; genae coarsely punctured, a few long white hairs; labrum black; mandibulae black, rugose, a few long yellowish hairs; antennae black, flagellum reddish beneath.

Prothorax not visible from above; tubercles black, with long white hair; mesothorax closely and coarsely punctured, a few white hairs; scutellum and postscutellum similar; metathorax rugose at base only; abdominal dorsal segments with margins depressed, coarsely punctured, red maculae laterally, four with a thin, complete fringe, others with a lateral tuft, apex with eight, strong, obtuse teeth, more or less conjoined, and beneath these two long large black projections almost hidden in white hair, three with a large black tooth laterally; apex with appressed white hair; ventral segments largely red, with coarse punctures, a few white hairs.

Legs with coxae, trochanters and median and hind femora black, anterior femora and all tibiae red, with white hair; tarsi darker, with hair inclining to yellow; claws reddish-amber; hind calcar amber; tegulae dark-reddish, closely punctured, a few white hairs; wings subhyaline; cells normal; pterostigma obsolete; hamuli eleven.

Locality.—Rottnest Island, Western Australia (December, 1931.)

Type in the collection of the Perth Museum.

Allies: *M. serricauda* Ckll. which has on the basitarsus of the anterior legs a large groove; but the apex of the abdomen lacks the two large black, widely separated lobes of the new species.

***Megachile subremotula*, sp. nov.**

Female.—Length, 10mm. approx. Black.

Head transverse, closely punctured; face with glistening white hair at sides; frons duller, and closely punctured; clypeus closely punctured, but no median raised line as in *M. remotula*; lower edge with three small shining nodules around a small indentation; vertex with a few short dark hairs; compound eyes converging slightly below; genae closely punctured, with long white loose hair; labrum black; mandibulae black, and broad, with some white hair; antennae black, obscurely lighter beneath.

Prothorax not visible from above; tubercles black, with a thick fringe of white hair; mesothorax closely punctured, a few short pale hairs; scutellum with a lateral spot of white hair; postscutellum similar to mesothorax; metathorax smoother, with long white hair laterally; abdominal dorsal segments shining, closely punctured, each with a median depression, one with a tuft of white hair, laterally, two, three and four with narrow bands of white hair, interrupted dorsally, five apically and six entirely, covered with appressed red hair; ventral segments with a white scopa.

Legs black, with white hair; tarsi hind tarsi obscure amber; hair yellowish; claws red, simple; hind calcar pale-amber, with the apical claw of *M. remotula*; tegulae piceous, closely punctured, a tuft of white hair; wings subhyaline; nervures dark-brown; cells normal; pterostigma dark-brown; hamuli thirteen, strongly developed.

Locality.—Rottnest Island, Western Australia (December, 1931.)

Type in the collection of the Perth Museum.

Allies: Very close to *M. remotula* Ckll., which is larger, 12mm., with black hind calcar and tarsi.

Division XYLOCOPIFORMES.

Family CERATINIDAE.

Exoneura pictifrons Alfken.

Professor Cockerell (1930) thought that his *E. angophorae occidentalis* might be the females of Alfken's species, and the large series of females, with two males, confirms the Professor. Alfken's name has seven years priority. Compared with mainland specimens, the island males are much larger, and more robust; the red abdomen being darker, and the yellow-face-marks slightly different.

The females present the same variations as those of the mainland; the red stripe of the antennae being yellow on some, and obscure red on others; the clypeus more or less suffused with reddish, or else quite black; the abdominal bands varying in number and intensity of colour. (November, December, January, February.)

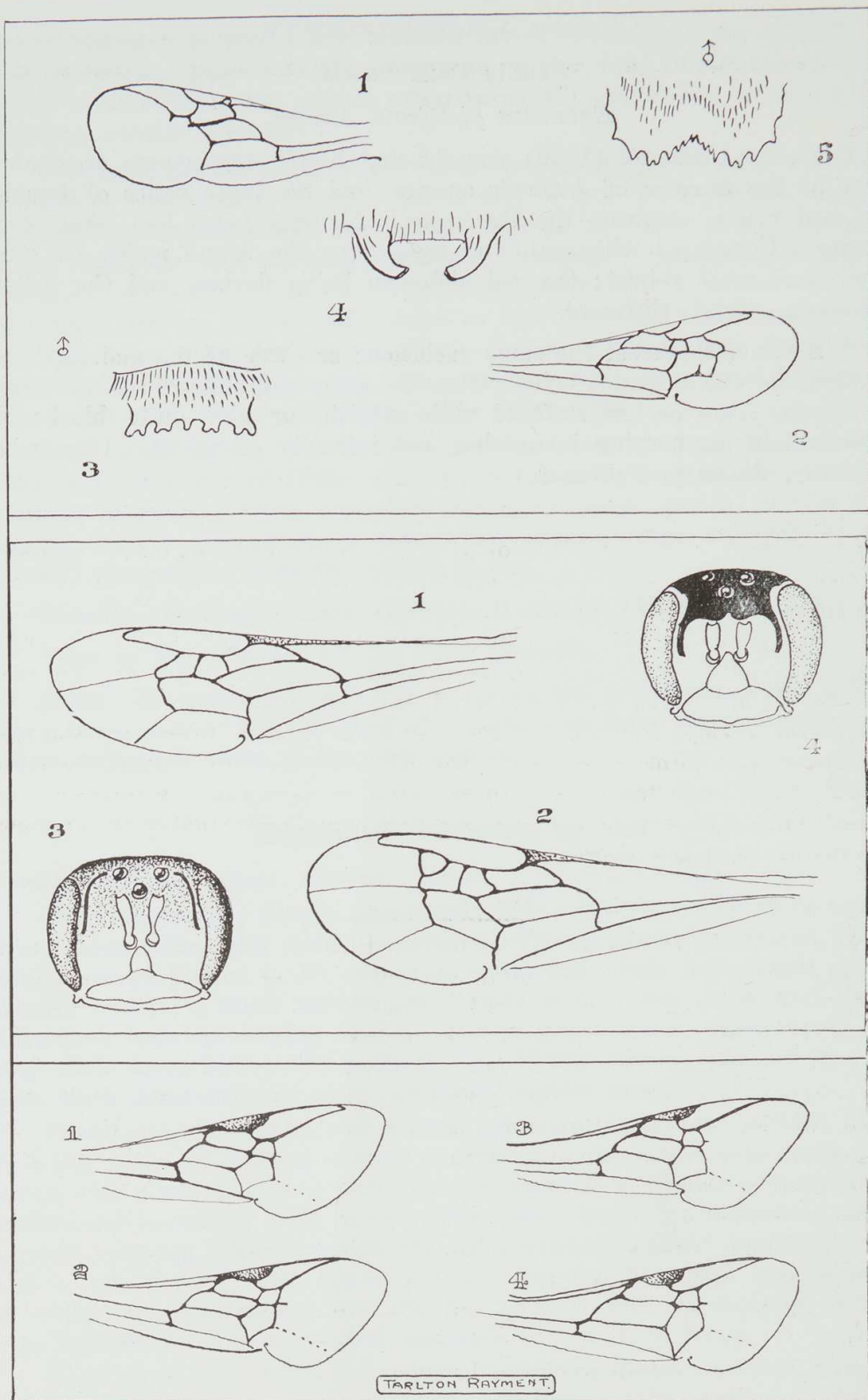


PLATE XII.

EXPLANATION OF PLATE.

Top: 1.—*Turnerella glauerti* sp. nov. 2.—*Paracolletes subminutus* sp. nov. 3.—Apical teeth on abdomen of *Megachile rotnnestensis* sp. nov. 4.—Clypeal teeth of female *Megachile clypeata grandis* subsp. nov. 5.—Apical teeth on abdomen of *M. serri-cauda* Ckll.

Centre: Normal wing neuration for *Trichocolletes* (*T. dowerinensis* Raym.). 2.—Abnormal neuration of *T. tenuiculus* Raym. (male). Note the four cubital cells. 3.—Front view of head-capsule of *Euryglossina hypoxantha* sp. nov. Note the incurved foveæ. 4.—Front view of head-capsule of *E. paraxantha* sp. nov. Flagella not shown.

Lower: 1.—Anterior wing of *Euryglossa subinconspicua* Raym. (M.S.). 2.—*E. inconspicua lutea* subsp. nov. 3.—*E. inconspicua* Ckll. 4.—*E. walkeriana* Ckll. Note the angles of the recurrent nervures and the form of the second cubital cells.